

Release notes for ENDF/B Development photoat-087_Fr_000
evaluation

ENDF
B-VII.dev

October 13, 2016

- checkr Warnings:

1. A previous error halted parsing of the current section
MAT=8700, MF= 1, MT=451 (1): Parsing stopped

```
ERROR(S) FOUND IN MAT=8700, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      168 TO      205
```

- checkr Errors:

1. A variable is outside the allowed ENDF range
MAT=8700, MF= 1, MT=451 (0): Variable range

```
ERROR(S) FOUND IN MAT=8700, MF= 1, MT=451
MOD =      3 OUT OF RANGE      0 -      1      RECORD NUMBER      168
```

2. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=501 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=8700, MF=23, MT=501
SECTION 23/501 NOT IN DIRECTORY      RECORD NUMBER      207
```

3. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=502 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=8700, MF=23, MT=502
SECTION 23/502 NOT IN DIRECTORY      RECORD NUMBER      1191
```

4. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=504 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=8700, MF=23, MT=504
SECTION 23/504 NOT IN DIRECTORY      RECORD NUMBER      1647
```

5. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=515 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=8700, MF=23, MT=515
SECTION 23/515 NOT IN DIRECTORY      RECORD NUMBER      1688
```

6. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=516 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=8700, MF=23, MT=516
SECTION 23/516 NOT IN DIRECTORY      RECORD NUMBER      1723
```

7. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=517 (0): Directory (b)

- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=517 | RECORD NUMBER | 1778 |
| SECTION 23/517 NOT IN DIRECTORY | | |
8. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=522 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=522 | RECORD NUMBER | 1820 |
| SECTION 23/522 NOT IN DIRECTORY | | |
9. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=534 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=534 | RECORD NUMBER | 2283 |
| SECTION 23/534 NOT IN DIRECTORY | | |
10. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=535 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=535 | RECORD NUMBER | 2302 |
| SECTION 23/535 NOT IN DIRECTORY | | |
11. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=536 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=536 | RECORD NUMBER | 2325 |
| SECTION 23/536 NOT IN DIRECTORY | | |
12. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=537 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=537 | RECORD NUMBER | 2348 |
| SECTION 23/537 NOT IN DIRECTORY | | |
13. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=538 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=538 | RECORD NUMBER | 2371 |
| SECTION 23/538 NOT IN DIRECTORY | | |
14. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=539 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=539 | RECORD NUMBER | 2396 |
| SECTION 23/539 NOT IN DIRECTORY | | |
15. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=540 (0): Directory (b)

- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=540 | |
| | SECTION 23/540 NOT IN DIRECTORY | RECORD NUMBER 2423 |
16. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=541 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=541 | |
| | SECTION 23/541 NOT IN DIRECTORY | RECORD NUMBER 2450 |
17. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=542 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=542 | |
| | SECTION 23/542 NOT IN DIRECTORY | RECORD NUMBER 2480 |
18. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=543 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=543 | |
| | SECTION 23/543 NOT IN DIRECTORY | RECORD NUMBER 2509 |
19. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=544 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=544 | |
| | SECTION 23/544 NOT IN DIRECTORY | RECORD NUMBER 2537 |
20. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=545 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=545 | |
| | SECTION 23/545 NOT IN DIRECTORY | RECORD NUMBER 2568 |
21. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=546 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=546 | |
| | SECTION 23/546 NOT IN DIRECTORY | RECORD NUMBER 2599 |
22. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=547 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=547 | |
| | SECTION 23/547 NOT IN DIRECTORY | RECORD NUMBER 2638 |
23. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=548 (0): Directory (b)

- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=548 | |
| | SECTION 23/548 NOT IN DIRECTORY | RECORD NUMBER 2677 |
24. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=549 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=549 | |
| | SECTION 23/549 NOT IN DIRECTORY | RECORD NUMBER 2737 |
25. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=550 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=550 | |
| | SECTION 23/550 NOT IN DIRECTORY | RECORD NUMBER 2798 |
26. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=551 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=551 | |
| | SECTION 23/551 NOT IN DIRECTORY | RECORD NUMBER 2830 |
27. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=552 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=552 | |
| | SECTION 23/552 NOT IN DIRECTORY | RECORD NUMBER 2867 |
28. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=553 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=553 | |
| | SECTION 23/553 NOT IN DIRECTORY | RECORD NUMBER 2906 |
29. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=554 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=554 | |
| | SECTION 23/554 NOT IN DIRECTORY | RECORD NUMBER 2964 |
30. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=559 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=8700, MF=23, MT=559 | |
| | SECTION 23/559 NOT IN DIRECTORY | RECORD NUMBER 3022 |
31. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=560 (0): Directory (b)

- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=560 | RECORD NUMBER | 3059 |
| SECTION 23/560 NOT IN DIRECTORY | | |
32. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=561 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=561 | RECORD NUMBER | 3102 |
| SECTION 23/561 NOT IN DIRECTORY | | |
33. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=23, MT=570 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=23, MT=570 | RECORD NUMBER | 3147 |
| SECTION 23/570 NOT IN DIRECTORY | | |
34. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=27, MT=502 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=27, MT=502 | RECORD NUMBER | 3188 |
| SECTION 27/502 NOT IN DIRECTORY | | |
35. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=27, MT=504 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=27, MT=504 | RECORD NUMBER | 3238 |
| SECTION 27/504 NOT IN DIRECTORY | | |
36. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=27, MT=505 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=27, MT=505 | RECORD NUMBER | 3289 |
| SECTION 27/505 NOT IN DIRECTORY | | |
37. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=8700, MF=27, MT=506 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=8700, MF=27, MT=506 | RECORD NUMBER | 3484 |
| SECTION 27/506 NOT IN DIRECTORY | | |

• fudge-4.0 Warnings:

- generic warning message
reaction label 0: Fr + gamma [coherent] / Product: gamma (Error # 0): Warning

WARNING: coherentScattering is not a valid distribution component for 2-body reaction
- FIXME: Generic fudge unimplemented message
reaction label 0: Fr + gamma [coherent] / Product: gamma (Error # 2): Generic unimp (c)

WARNING: Checking not yet implemented for pointwise type data

3. generic warning message
reaction label 1: Fr + gamma [incoherent] / Product: gamma (Error # 0): Warning

WARNING: incoherentScattering is not a valid distribution component for 2-body reaction

4. FIXME: Generic fudge unimplemented message
reaction label 1: Fr + gamma [incoherent] / Product: gamma (Error # 2): Generic unimp (c)

WARNING: Checking not yet implemented for piecewise type data

5. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule
summedReaction label 29: total (Error # 0): Sumrule

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 100.00%

6. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule
summedReaction label 31: photoelectric absorption (Error # 0): Sumrule

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 99.86%

• fudge-4.0 Errors:

1. Calculated and tabulated thresholds don't agree
reaction label 0: Fr + gamma [coherent] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

2. 2-body reaction not in center-of-mass frame
reaction label 0: Fr + gamma [coherent] / Product: gamma (Error # 1): 2-body not in COM

WARNING: 2-body reaction not in center-of-mass frame!

3. Calculated and tabulated thresholds don't agree
reaction label 1: Fr + gamma [incoherent] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

4. 2-body reaction not in center-of-mass frame
reaction label 1: Fr + gamma [incoherent] / Product: gamma (Error # 1): 2-body not in COM

WARNING: 2-body reaction not in center-of-mass frame!

5. Energy range of data set does not match cross section range
reaction label 1: Fr + gamma [incoherent] / Product: gamma / Distribution incoherentScattering - piecewise: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (0.0 -> 1000000000.0) vs (1.0 -> 1e+11)

6. Calculated and tabulated thresholds don't agree
reaction label 2: $e^- + e^+ + Fr$ [electron field] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 2.044e6 eV!
7. Calculated and tabulated thresholds don't agree
reaction label 3: $e^- + e^+ + Fr$ [nuclear field] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!
8. Calculated and tabulated thresholds don't agree
reaction label 4: $e^- + Fr1s1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 101520. eV!
9. Calculated and tabulated thresholds don't agree
reaction label 5: $e^- + Fr2s1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 18630. eV!
10. Calculated and tabulated thresholds don't agree
reaction label 6: $e^- + Fr2p1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 17971. eV!
11. Calculated and tabulated thresholds don't agree
reaction label 7: $e^- + Fr2p3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 15034. eV!
12. Calculated and tabulated thresholds don't agree
reaction label 8: $e^- + Fr3s1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4619.1 eV!
13. Calculated and tabulated thresholds don't agree
reaction label 9: $e^- + Fr3p1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4312.5 eV!
14. Calculated and tabulated thresholds don't agree
reaction label 10: $e^- + Fr3p3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 3644.5 eV!
15. Calculated and tabulated thresholds don't agree
reaction label 11: $e^- + Fr3d3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 3138.9 eV!
16. Calculated and tabulated thresholds don't agree
reaction label 12: $e^- + Fr3d5/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 2999.2 eV!

17. Calculated and tabulated thresholds don't agree
reaction label 13: $e^- + Fr4s1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1130.3 eV!
18. Calculated and tabulated thresholds don't agree
reaction label 14: $e^- + Fr4p1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 992.6900000000001 eV!
19. Calculated and tabulated thresholds don't agree
reaction label 15: $e^- + Fr4p3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 822.8 eV!
20. Calculated and tabulated thresholds don't agree
reaction label 16: $e^- + Fr4d3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 597.6 eV!
21. Calculated and tabulated thresholds don't agree
reaction label 17: $e^- + Fr4d5/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 565.95 eV!
22. Calculated and tabulated thresholds don't agree
reaction label 18: $e^- + Fr4f5/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 269.95 eV!
23. Calculated and tabulated thresholds don't agree
reaction label 19: $e^- + Fr4f7/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 262.07 eV!
24. Calculated and tabulated thresholds don't agree
reaction label 20: $e^- + Fr5s1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 232.34 eV!
25. Calculated and tabulated thresholds don't agree
reaction label 21: $e^- + Fr5p1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 181. eV!
26. Calculated and tabulated thresholds don't agree
reaction label 22: $e^- + Fr5p3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 143.91 eV!
27. Calculated and tabulated thresholds don't agree
reaction label 23: $e^- + Fr5d3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 68.73 eV!

28. Calculated and tabulated thresholds don't agree
reaction label 24: e- + Fr5d5/2 / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 63.52 eV!
29. Calculated and tabulated thresholds don't agree
reaction label 25: e- + Fr6s1/2 / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 32.64 eV!
30. Calculated and tabulated thresholds don't agree
reaction label 26: e- + Fr6p1/2 / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 19.28 eV!
31. Calculated and tabulated thresholds don't agree
reaction label 27: e- + Fr6p3/2 / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 14.14 eV!
32. Calculated and tabulated thresholds don't agree
reaction label 28: e- + Fr7s1/2 / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 3.8 eV!
33. Calculated and tabulated thresholds don't agree
summedReaction label 29: total / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!
34. Calculated and tabulated thresholds don't agree
summedReaction label 30: pair product / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!
35. Calculated and tabulated thresholds don't agree
summedReaction label 31: photoelectric absorption / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 3.8 eV!

- **xsectplotter** Warnings:

1. Encountered runtime warning in xsectplotter or Fudge or matplotlib
Error: RuntimeWarning

```
stderr while processing crossSection
```

```
/usr/local/lib/python2.7/site-packages/matplotlib-1.3.1-py2.7-linux-x86_64.egg/matplotlib/pyplot.py:412: RuntimeWarning:
... [3 more lines]
```